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BEFORE
THE PUBLIC SERVICE COMMISSION
OF
SOUTH CAROLINA

DOCKET No. 2001-507 -E

In Re:	Application of Palmetto Energy Center, LLC, For a Certificate of Environmental Compatibility And Public Convenience and Necessity to Construct a Major Utility Facility	**APPLICATION**

S. C. PUBLIC SERVICE COMMISSION
RECEIVED
UTILITIES DEPARTMENT

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December 21, 2001

Columbia, South Carolina

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1.0 INTRODUCTION

1.1 Introduction

PALMETTO ENERGY CENTER, LLC, ("Palmetto Energy"), an affiliate of Calpine Corporation ("Calpine"), submits this Application for certain relief in the nature of this Commission's authorization for the construction of a facility for the generation of electric power and energy ("Palmetto Energy Center" or "PEC") to be located in the Bradley Industrial Park, in the vicinity of Fort Mill, York County, South Carolina. Specifically, Palmetto Energy seeks the issuance of a Certificate of Environmental Compatibility and Public Convenience and Necessity to construct and operate the Palmetto Energy Center, pursuant to the provisions of S.C. Code Ann. §§ 58-33-10 et seq. (1976) ("the Siting Act").

This Application contains the information which the Siting Act and the Commission's rules of practice and procedure require for initiation of a proceeding under the Siting Act.

As required by S.C. Code Ann. § 58-33-120(3) (1976), Palmetto Energy has provided public notice of its intention to submit this Application. A copy of the notice which Palmetto Energy Center has caused to be published is attached to this Application, Palmetto Energy will file the Affidavit of Publication upon receipt.

As required by S.C. Code Ann. § 58-33-120(2) (1976), Palmetto Energy has caused a copy of this Application to be served on those officials or persons which section 58-33-120(2) identifies. The Certificate of Service attached to this Application demonstrates proof of service of this Application.

Correspondence and communications with respect to this Application should be directed to the following:

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1.2 Summary Description of Calpine Corporation

Calpine Corporation (Calpine) is a publicly owned company organized under the laws of the State of Delaware with its headquarters in San Jose, California. Calpine develops, owns, and operates electric generating facilities throughout the United States. Calpine is a publicly traded company on the New York Stock Exchange, (symbol CPN), with over 41,000 megawatts of electric generation currently in operation, under construction, or advanced development in 27 states including South Carolina. Calpine currently has one plant in operation in South Carolina, the Broad River Energy Center, located in Gaffney South Carolina, and one plant under construction, the Columbia Energy Center located in Calhoun County South Carolina. Palmetto Energy, LLC, (PEC), a subsidiary of Calpine, a limited liability company organized under the laws of the State of Delaware, with its headquarters in Boston, Massachusetts. PEC is authorized to transact business in the State of South Carolina. PEC proposes to build and operate the Palmetto Energy Center (PEC), a new combined cycle electric generating facility in Fort Mill, York County, South Carolina. The Palmetto Energy Center represents over $500 million dollar capital investment in South Carolina, will create approximately 27 new, highly skilled jobs and will significantly add to the tax base of York County South Carolina. This investment, taken in conjunction with the other plants Calpine has in South Carolina represents a total capital investment of approximately $1.5 billion dollars in the state of South Carolina.

1.3 Summary Description of the Project

Calpine is proposing to build and operate up to 970 MW of new electric generation. This Project will consist of a new 800 MW nominal natural gas fired power plant with the capability of generating an additional 170 MW of peaking power through supplemental natural gas firing of the heat recovery steam generators (HRSGs). The Facility will employ state-of-the-art combustion turbine technology in combined-cycle configuration to supply both baseload and

peakinge electricity to the regional power market. PEC represents a low cost and environmentally sound electric generation addition to the regional power supply.

PEC will operate in combined cycle mode and will include three (3) General Electric (GE) model 7FB turbines that will be manufactured in South Carolina. Each turbine will exhaust to a HRSG that provides steam to a condensing steam turbine. The HRSGs will also include provisions for supplemental firing utilizing natural gas fired duct burners. Natural gas will serve as the sole fuel source for the turbines and duct burners with no backup fuel proposed.

1.4 Summary of Need

The PEC will add generating capacity into the Duke transmission system that serves the mountain and piedmont regions of South Carolina and North Carolina and is located in the Virginia-Carolina (VACAR) market area. VACAR is a sub-region of the Southeast Electric Reliability. It is anticipated that there will be a need for an additional 12,000 MW of generating capacity in the VACAR sub-region by the end of 2010 and over 40,000 MW of new generating capacity by the end of 2025. The Facility will be a resource available to any load serving entity in South Carolina or the general SERC market area that requires additional power generating resources. The Facility will benefit and serve either directly or indirectly the needs of South Carolina as it will provide electrical energy for the larger market area of which South Carolina is an integral part. As a merchant power plant developer, Calpine will bear the costs associated with interconnecting PEC into the Duke transmission network and the risk of any underutilization of the facility. South Carolina power consumers will benefit, as the presence of the project's generating capacity will help to lower South Carolina power prices even if the plant is underutilized.

1.5 Summary of Environmental Considerations

PEC will comply with all applicable State, Federal, and local environmental regulations and requirements. PEC is currently in the process of applying for all applicable permits and approvals at the State, Federal, and local levels

PEC will utilize only clean-burning natural gas as its fuel, and its emissions will be minimized by incorporating Best Available Control Technology (BACT) into the design of the

project, as required by State and Federal air pollution control regulations. The Facility will comply with all ambient air quality standards and regulations, and this compliance will be appropriately demonstrated in the application(s) for all applicable air permits.

The use of water from and the discharge of process cooling water to the nearby Catawba River will be in accordance with South Carolina Water Quality Certification criteria and Federal regulations governing water withdrawal and waste water discharges. The Facility will comply with all water and wastewater standards and regulations, and this compliance will be demonstrated in the application(s) for all applicable water/wastewater related permits.

The Project site has been surveyed to identify the presence of wetlands and threatened and endangered species. Based on this survey, no Army Corps of Engineers (COE) jurisdictional wetlands or threatened or endangered species were identified on the Project site. Additional surveys will be conducted to determine and evaluate the presence of these resources in the minimal electrical and water line right of ways (ROW's) that will be developed as part of the project. As required, all appropriate documentation of these findings will be provided to the State and Federal agencies (South Carolina Department of Health and Environmental Control, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and others) for review and approval.

An initial evaluation of cultural and archaeological resources was performed via a background literature search, which indicated that there are no previously recorded archaeological resources on the Project site. One historic resource, a portion of the old Nations Ford Road, is thought to traverse a small portion of the site. A detailed archeological and historical survey will be conducted of the site by qualified personnel, to determine the presence of these resources. The development of the PEC is not expected to impact any of these resources. Field surveys on all water supply, waste water discharge and electrical transmission line ROW's are currently being performed. Documentation of all findings will be provided to the South Carolina State Historic Preservation Office for review and approval.

2.0 STATEMENT OF PURPOSE AND NEED

2.1 System Purpose and Needs

PEC will add generating capacity into the Duke Power and Grid South electrical transmission grid. The Duke transmission system serves the mountain and piedmont regions of South Carolina and North Carolina and is located in the Virginia-Carolina (VACAR) market area. VACAR is a sub-region of the Southeast Electric Reliability Council (SERC) power market area that includes the entire state of South Carolina. The high degree of interconnection within the VACAR subregion of SERC and between VACAR and other subregions, including the Southern subregion and the Tennessee Valley Authority subregion, means that South Carolina's power resource requirements are not isolated. Since the VACAR subregion has traditionally evaluated needs across the region, not in just one state or service area, the need for power generating assets should be viewed within the larger context of VACAR and SERC.

Calpine contracted with Pace Global Energy Services to research market conditions and trends and provide information regarding future electrical demand in the VACAR sub-region. The Pace study projects that demand growth for electrical power will average over two percent per year over the next 20 years in the VACAR sub-region. It is anticipated that there will be a need for an additional 12,000 MW of generating capacity in the VACAR sub-region by the end of 2010 and over 40,000 MW of new generating capacity by the end of 2025. The electrical energy produced by the PEC represents approximately seven percent of the additional electrical generating capacity needed in the VACAR sub-region through 2010. If additional electrical generating capacity does not keep pace with increasing demand in the VACAR sub-region, a deterioration of electrical service reliability and volatile electrical energy prices will be the likely result along with a potential negative impact on economic growth. Further, generating capacity additions that are necessary to maintain reliability and price stability in VACAR and South Carolina may create the need for transmission system upgrades. Typically, much of this transmission infrastructure upgrade will be paid by the developers of new generating capacity as a normal part of the interconnection process. Transmission-owning utilities conduct interconnection and system impact studies to determine the affect new generating stations will have on transmission system reliability and costs. The owners of new generating plants are then assessed the costs to alleviate any adverse transmission system consequences before they can

connect to the system. While this practice may not entirely cover the costs of necessary transmission system improvements, the consequences of inadequate generating capacity would likely be more severe to system reliability and consumer cost than the consequential transmission impacts.

Finally, the PEC will be a resource available to any load serving entity in South Carolina or the general SERC market area that requires additional power generating resources. The power market supply-demand balance will likely determine whether the facility's output will be sold on a contractual basis to meet long-term supply requirements, or on a spot market basis to provide a short-term balancing of supply and demand. Either way, the facility will benefit and serve either directly or indirectly the needs of South Carolina as it will provide electrical energy for the larger market area of which South Carolina is an integral part. As a merchant power plant developer, Calpine will bear the risk of any underutilization of the facility, and South Carolina power consumers will benefit, as the presence of the project's generating capacity will help to lower South Carolina power prices even if the plant is underutilized.

2.2 Planning Process

In establishing the need for the PEC, Pace Global Energy Services was commissioned by Calpine to produce a power demand forecast. This power forecast has two primary components. The first is the use of econometric models to forecast annual peak demand and energy levels based on changes in population, employment, income, and other factors. The second component of the methodology is the translation of historical hourly demand levels and forecasted peak demands to create predicted hourly load for each forecast year. Typically, the most accurate means of projecting future demand is not done solely by analyzing past trends in peak and energy demands but by analyzing the underlying factors that drive the consumption of electricity.

The Pace study generated its demand forecast based on historical relationships between regional demand and multiple historic economic indicators such as population, employment, and income between 1989and 2000. To generate the demand forecast, the study established the historical relationship between net energy load, population, employment, and disposable income. The study regression analysis indicated an extremely strong correlation between electricity demand and the economic indicators.

Pace routinely compares its demand forecasts to those of other organizations, including local utilities and independent research organizations. Pace's demand growth rate forecast for SERC, an aggregation of the forecasts for each of SERC's subregions as used in its study for Calpine Corporation, is very similar to that produced by the SERC utilities. Over the period 2000 to 2010, Pace forecasts demand (net energy for load) in SERC to grow at the rate of 2.4% per year. The utilities, through the North American Electric Reliability Council (NERC) publication ES&D 2001, forecast 2000 to 2010 power demand growth at 2.5% annually. This means that in 2005, utility SERC demand is forecast to be approximately 2% higher than Pace's forecast. VACAR utilities growth forecast over the same period is 2.4% while Pace forecasts demand growth in VACAR at 2.7% over the period 2000 to 2010. Consequently, Pace's VACAR demand forecast is 1% higher in 2005 than that forecast by the VACAR utilities.

The Pace study will also point out that Calpine has selected an appropriate choice for generating technology (i.e., highly efficient power plant using modern combined cycle technology) considering the segment of the power market that will be served by the Facility. Further, the PEC will provide both a base load resource (the base combined cycle machine), as well as a peaking resource through the duct firing capability planned for the project. Specifically, duct firing provides additional electrical output from the Project that will be available primarily during higher demand periods.

3.0 TECHNICAL INFORMATION

3.1 Project Site Location

PEC will be located within an approximately *65*-acre parcel of land within the Bradley Industrial Park in Fort Mill, South Carolina. The site is moderately hilly with onsite elevations ranging from 520 to 620 feet above mean sea level (msl) and is near the banks of the Catawba River. There are limited wetlands on the site but they will not be impacted by the PEC. Figure 1 presents a United States Geological Survey (USGS) topographic map showing the location of the proposed Project in relation to the surrounding area. An overall Facility layout is shown in Figure 7, preliminary site plan is included as Figure 2 and a preliminary plot plan showing the general arrangement of PEC is included as Figure 3.

Calpine considered several alternative sites prior to selecting the site in the Bradley Industrial Park in Fort Mill. The evaluation process considered several factors, and selected this site because it has the least environmental impact while satisfying the review criteria namely-access to gas, water and electric transmission.

Specific alternative sites evaluated included:

- Several sites in the vicinity of the Newport substation in York County, southwest of Lake Wylie were examined. While these sites were zoned industrial, they were in areas that have become or are rapidly becoming residential, and the use was viewed as incompatible with the surrounding neighborhoods.

- Sites in Cherokee County, near the Broad River, were ruled out because of the existence of the Calpine Broad River Energy Center,. Additionally there have been several announced plants in the area which could place further burden on the transmission network in that area which could make siting additional plant problematic.

- Sites in northwestern Lancaster County were ruled out because of the additional gas transmission costs.

The Bradley Industrial Park site was selected based on it being industrially zoned, has water and waste water access, transmission access via a 500 kV line, and is well buffered from neighbors. Gas transmission will require upgrades, but as discussed below there are several alternative for gas supply to the Project site.

3.2 General Project description

Calpine is proposing to build and operate up to 970 MW of new electric generation. PEC will consist of a new 800 MW nominal natural gas fired power plant with the capability of generating an additional 170 MW of peaking power by increasing steam generation through supplemental duct firing natural gas firing of the heat recovery steam generators (HRSGs). PEC will employ state-of-the-art combustion turbine technology in combined-cycle configuration to supply both baseload and peaking power to the regional power market. PEC represents a low cost and environmentally sound electric generation addition to the regional power supply.

PEC will operate in combined cycle mode and will include three (3) General Electric (GE) model 7FB turbines. Each turbine will exhaust to a HRSG that provides steam to a single reheat condensing steam turbine. The HRSGs will also include provisions for supplemental firing utilizing natural gas fired duct burners. Natural gas will serve as the sole fuel source for the turbines and duct burners with no backup fuel proposed.

The Project construction is scheduled to begin in 2003 with commercial operation to commence in the second quarter of 2005.

3.3 Description of the Power Production Facility

PEC will include three (3) General Electric (GE) model 7FB turbines manufactured in South Carolina. Each turbine will exhaust to a HRSG that provides steam to a single reheat condensing steam turbine operating in combined-cycle mode. The low-pressure section of the STG will be connected to a surface condenser. The tubes of the condenser will be cooled by circulating water that in turn will be cooled by a multiple-cell mechanical draft wet cooling tower.

The HRSGs will also include provisions for supplemental firing utilizing natural gas fired duct burners. Supplemental firing of the HRSGs generates additional steam over that produced by the gas turbine exhaust alone. This additional steam increases the output of the HRSG and STG by approximately 170 MW. The total nominal plant generating capacity will be 800 MW, without duct firing, and approximately 970 MW through supplemental natural gas firing of the HRSGs.

PEC will use combined-cycle power generation technology to maximize generation efficiency and minimize fuel use. Efficient natural gas combustion using state-of-the-art Dry Low NO_X (DLN) combustors and application of Best Available Control Technology (BACT) to reduce air pollutant emissions. The recovery of the waste heat from the combustion turbine exhaust to generate steam makes this technology 40 percent more thermally efficient than traditional steam electric utility power plants. Since combined-cycle units burn less fossil fuel to generate an equivalent amount of electricity, they also have significantly lower air pollutant emissions per unit of electricity generated.

The production of electricity using a combustion gas turbine coupled with a shaft driven generator is referred to as the Brayton Cycle. Brayton cycle generation has a thermal efficiency that generally approaches 40 percent. The Rankine Cycle represents the traditional method of generating power from high-pressure steam. Rankine cycle plants have a typical thermal efficiency of less than 35 percent.

Combined-cycle generation combine the Brayton and Rankine cycles to maximize thermal efficiency. The exhaust heat from the turbines will then be recovered in the Rankine Cycle HRSG/STG. The exhaust heat will be extracted in the HRSG until the exhaust temperature is approximately 150°F to 200°F before it is discharged through the stacks. This results in an overall thermal efficiency for the facility of over 55 percent. This state-of-the-art, high-efficiency technology combined with the exclusive use of the cleanest fossil fuel (natural gas) and the application of BACT, will generate more electricity per pound of fuel consumed and produce significantly less air emissions of a similarly sized conventional power plant.

3.4 Equipment and Facilities

The following provides a brief description of the major components that will comprise the PEC.

Combustion Turbines

PEC proposes to install three GE 7FB combustion turbines (CT) will be manufactured in South Carolina. Each CT is rated at a nominal output of 170 MW. The plant generation can be increased under certain ambient conditions through the use of inlet air fogging. The inlet air fogger system uses demineralized water, injected as a "fog" into the combustion turbine inlet air stream. The water cools the inlet air via evaporative cooling which increases its density, and consequently the mass flow through the turbine. In addition, the combustion turbine output will be increased during periods of peak electricity demand through steam injection for power augmentation (PAG). When operating in PAG mode, steam from the HRSG is injected into the combustion turbine to increase mass flow and accordingly power output. Natural gas will be the sole fuel fired in the gas turbines.

The CT operates by using combustion air that is filtered, cooled, and compressed in a multiple-stage axial flow compressor. Compressed air and natural gas are mixed and combusted in the turbine combustion chamber. Lean pre-mix DLN combustors are used to minimize NO_X formation during combustion. Exhaust gas from the combustion chamber is expanded through a multi-stage power turbine that drives both the air compressor and electric power generator prior to be exhausted to the HRSG.

Each GE 7FB gas turbine power block will include a compressor section, gas combustion system (utilizing advanced DLN combustors), power turbine, and a 60hertz (Hz), 18 kilovolt (kV) generator. The GE 7FB combustion turbines are designed to operate in the DLN (lean pre-mix) mode at operating loads from 50 percent up to baseload rating and will normally be taken out of service only for scheduled maintenance, or as dictated by economic or electrical demand conditions.

The GE 7FB turbines will have the potential to operate as baseload generating units with potential operating hours of 8,760 hours per year per turbine.

Heat Recovery Steam Generators

Exhaust gas exiting the power turbine at approximately 1,100°F will be ducted to a waste heat boiler commonly known as a Heat Recovery Steam Generator (HRSG) where high-pressure steam is produced to generate additional electricity in a steam turbine generator. Gas fired duct burners located within the HRSGs are used for supplementary firing to increase steam output. One HRSG will be provided for each combustion turbine to recover the waste heat in the exhaust for the purpose of generating steam for the STG. A horizontal, natural circulation, three-pressure HRSG will extract heat from the exhaust of each GE 7FB gas turbine. Exhaust gas entering the HRSG at approximately 1,100°F will be cooled to approximately 150°F to 200°F by the time it leaves the HRSG. Steam production in the HRSGs can be increased using natural gas fired duct burners located in the HRSG. The steam produced will be delivered to the STG for additional peak power production.

A state of the art Selective Catalytic Reduction (SCR) emission control device will be installed in each HRSG to reduce emissions of NO_X, from both the combustion turbines and the duct burners. Each HRSG will be exhausted through its own stack.

Steam Turbine Generator (STG)

PEC will include one reheat condensing STG. The high-pressure portion of the STG receives high-pressure superheated steam from one or more of the HRSGs, and exhausts to the reheat section of the HRSGs. The steam from the reheat section of the HRSGs is supplied to the intermediate pressure section of the turbine, which expands to the low-pressure section. The low-pressure portion of the STG also receives low-pressure steam from the HRSGs and exhausts to the surface condenser.

Process Cooling

A multi-cell mechanical draft wet cooling tower will be integral to operation of the Facility. The majority of the cooling water will be used in the surface condenser to absorb the heat rejected from the STG. Water from the cooling tower is commonly referred to as circulating water. A dedicated set of cooling water pumps is provided for this service.

Cooling tower water is also used for direct cooling of plant auxiliaries. The cooling tower itself is a device designed to evaporate clean water that provides cooling.

Auxiliary Boiler

A 99 million British thermal units per hour (MMBtu/hr) natural gas-fired auxiliary steam boiler will be used for heating steam to accommodate plant start-up and to optimize keep-warm conditions. The auxiliary steam boiler will fire natural gas exclusively.

Fuel Gas System

Natural gas will be delivered to the plant boundary at a pressure sufficient for use in the combustion turbines without additional fuel compression. Once on-site, the natural gas will first be sent through a knockout drum for removal of any liquid that may have been carried through the pipeline. The natural gas will then be heated using a natural gas-fired dew point heater. Due to the critical nature of the dew point heater, two dew point heaters will be installed, one for operations and another as backup. Therefore, only one dew point heater will operate at any one time. The natural gas will be sent from the dew point heater through a filter/separator to remove particulate matter and entrained liquid. Finally, the treated natural gas is delivered to the combustion turbines, duct burners, auxiliary boilers, and space heaters.

Emergency Diesel Engine Generator and Diesel Fire Pump Engine

An emergency generator engine (1,200 kW) will be located on-site. The generator will provide power to essential services necessary to protect the equipment during an emergency shutdown resulting from a loss of power. The emergency generator engine will only be used in the event of a disruption of power delivery and during routine readiness testing. A small diesel engine (350 BHP) will be installed to power a fire pump located on-site. The fire pump engine will be operated in the event of a plant fire and during routine readiness testing.

Plant Water Systems

The Project has selected a closed loop cooling system employing a mechanical draft cooling tower. This system provides the most effective cooling option considering that the adjacent Catawba River represents the most practicable supply of raw water. In addition to

having adequate water volume to meet Project needs, the Catawba River also has sufficient capacity to accept all of the treated wastewater from PEC.

Water will be required for a number of purposes at the Project, including condenser cooling, boiler water makeup, cooling water makeup, inlet air fogging, plant service water, and fire control. Water will be provided to PEC by withdrawal directly from the Catawba River using a submerged intake structure located in the river. The intake structure will be designed to minimize impacts to aquatic life. The water will be pumped to PEC via a pump house located adjacent to the river. The pump house will be set back off of the river bank and will be screened from the river by a vegetative buffer. The water will be sent to PEC utilizing new piping infrastructure that will be extended from the pump house structure to PEC. Raw water will be treated using clarifiers and multi-media filters to remove suspended solids. The clarified water is used in the cooling tower as make up and also sent to the demineralized water treatment system for make up to the power cycle. A preliminary water balance is shown in Figure 4.

Discharge of treated Project cooling water will occur via a new discharge line to the Catawba River, downstream of the water intake structure. The majority of discharged water will be derived from cooling tower blowdown. Other waste streams may be mixed with this discharge and include demineralization regeneration wastes, steam cycle blowdown, and floor and equipment drains. The analysis to be conducted by PEC on the discharge water is provided in Section 5.3.

Stormwater flows during construction and from the developed site will be controlled through the use of stormwater Best Management Practices (BMP's) and detention ponds that will control the rate of discharge to the Catawba River, prevent erosion and minimize water quality impacts.

PEC intends to tie into a local sewer line for the disposal and treatment of sanitary wastes from site employees and visitors.

Emissions Monitoring

Continuous Emissions Monitoring system (CEMS) will be provided for each combustion turbine to quantify emissions as required by DHEC's permit to construct and operate PEC. All

monitoring of PEC's emissions will be in accordance with State and Federal regulations and permit requirements.

Distributed Control System

The General Electric CT controls package will be utilized for control of the CTs. This equipment will operate together with the main plant Distributed Controls System (DCS) to control the operation of PEC systems and components. The DCS will be located in the central control room and will operate all auxiliary plant equipment and systems.

Electrical System

The electrical systems and associated equipment will be designed to provide a reliable source of power for all auxiliaries required for successful plant operation and for increasing the voltage of the generated power for delivery to the transmission system. The system will be designed with sufficient flexibility and redundancy to provide continuity of service and minimum maintenance. The electrical systems will include the following equipment:

- Interface with the Duke 500 kV electrical system
- 500 kV AC switchyard
- Three 18 kV to 500 kV generator step-up transformers
- Two station auxiliary transformers
- 4160 V AC distribution system
- 480 V AC distribution system
- Protective relay and control systems
- 125-V DC distribution system
- 120-V AC uninterruptible power supply system
- Grounding, lightning, and cathodic protection systems
- Communication system
- Trays and conduits
- Power, control, and instrumentation cables

PEC's 500 kV AC outdoor switchyard will be a main bus configuration connecting each step-up transformer, plant auxiliary/start-up transformer, and the utility interface 500 kV transmission lines. One generator step-up transformer per generator will be provided to increase the 18 kV generator voltage to the switchyard/transmission line voltage of 500 kV.

Electric power will be generated at 18 kV from the turbine-generator unit. The power thus generated will be transmitted via isolated phase buses routed overhead to the generator

step-up transformers located adjacent to the plant. Auxiliary power for PEC equipment loads will be available through the two step-down station auxiliary transformers for use in PEC's 4160 VAC and 480 VAC distribution systems.

Fire Protection System

Fire protection equipment will be installed in accordance with NFPA Standard 850, "Recommended Protection For Fire Prevention For Electric Generating Facilities." And in consultation with the local fire district.

Ancillary Facilities

PEC will include other equipment supporting plant operations. This equipment includes the following:

- Ammonia storage tanks;
- Diesel storage tank for emergency generator and fire pump;
- Plant sumps, sump pumps, and oily water separator;
- Demineralized water treatment systems;
- Bulk acid and caustic storage tanks for waste water neutralization;
- Demineralizer regeneration wastewater neutralization tank;
- Plant and instrument air compressors and auxiliary equipment; and
- Sanitary lift station

3.5 Operation of The Plant

PEC will operate as a baseload facility, essentially operating during all hours of the year with certain exceptions for maintenance, forced outages, and extremely low electric power demand. The Project's air permit application and, as applicable, other authorizations will take this maximum case scenario into account in modeling air emissions from the Project.

The operation and electrical output of PEC may vary as load demands and ambient conditions change. The CT's operating characteristics are dependent upon ambient conditions wherein the net plant output will increase as ambient temperature drops.

PEC will be designed to be operated as a fully attended facility at all times. Start up and control of the generating units and major systems of the Project will be done from a central control room. Maintenance will be performed by shift workers and if necessary, outside vendors. All employees involved in operating and maintenance of the Project will be

employees of Calpine. PEC's operating staff will consist of approximately twenty-seven employees.

4.0 INTERCONNECTION FACILITIES

4.1 Electric Interconnection

On May 1, 2001, Calpine applied to Duke Electric Transmission, a division of Duke Energy Corporation ("Duke ") for an Interconnection Study ("Study") for the PEC. The objective of the Study was to evaluate the electric interconnection of PEC to Duke's existing transmission system. Duke is conducting detailed engineering analyses to accurately model the PEC's proposed generation and the interaction of that generation with Duke's existing transmission system during normal and contingency conditions.

The scope of the Study is to examine the load flow, short circuit and stability impacts of interconnecting the Project to Duke's Richmond line which runs between Duke's Newport Tie and CP&L's Richmond substation. Duke will perform the Study in two parts, (i) a Generation Interconnection Impact Study, and (ii) a Generation Interconnection Facility Study to examine the impact of Calpine's proposed generation interconnection with Duke's Richmond line, to determine the adequacy of the local transmission system to accommodate the proposed interconnection, and to determine the directly assignable costs associated with interconnection of PEC with Duke's transmission system.

The Generation Interconnection Impact Study has been completed and is included as Appendix A. The Interconnection Impact Study results include a study of the thermal impact on the transmission system and the study methodology. The stability and fault studies are normally performed at the same time as the thermal study. However, Duke stated that to complete the study in a timely fashion, only the thermal impact study has been performed. A stability study and fault study will be performed as part of the Generation Interconnection Facilities Study . Duke will perform the Study using the criteria and process detailed in Duke's annual FERC Form 715 submittal.

PEC will continue to work with Duke to complete the Generation Interconnection Facilities Study and once completed, the parties will enter into an Interconnection Agreement under which Duke will commit to install and maintain the necessary facilities for the interconnection and PEC will commit to pay for Duke's efforts. Except for certain facilities that

will be located in the PEC's electric switchyard, all upgrades and components of the new installation will belong to Duke as part of its transmission grid.

The Duke transmission right-of-way, PEC's interconnection with Duke and all of the facilities directly associated with the Project will be contained within the boundaries of the property encompassed by the Bradley Industrial Park, which is owned by Springland, Inc., a subsidiary of the Springs Company. The electric interconnection will be made over land owned by Springland over which Springland will grant Palmetto Energy the right to install and maintain transmission towers and wires. The connection will be made via facilities that will be constructed and owned by Duke. The proposed interconnection Right of Way is shown on Figure 7 and the proposed interconnecting facilities are shown on Figure 8. The design of these facilities is dependant upon completion of the Generation Interconnection Facilities Study by Duke and as such are preliminary

4.2 Electric Transmission to Third Parties

In addition to the physical interconnection of the PEC to the Duke grid, PEC will make a point-to-point (firm or non-firm) or network transmission service request to Duke to arrange for delivery of the electric power from PEC to its customer(s). This request will designate a point of receipt (likely the switchyard on the Project site) and a point of delivery ("POD") to which Duke will deliver the electric power. The POD may be Duke, a customer on Duke's system (as allowed by applicable law), or the interface of an adjoining transmission provider. Once the POD is identified, PEC and Duke will enter into a Transmission Service Agreement under which PEC will pay for transmission and ancillary (e.g., back-up power, generation balancing) services and Duke will provide those services. If upgrades to Duke's transmission grid are required to accommodate the requested service, PEC will enter into a separate agreement with Duke similar to the Interconnection Agreement whereby Duke will install and maintain the necessary facilities and PEC will pay Duke for its efforts.

PEC is currently evaluating the best alternative for the delivery of electric power produced by the PEC. Factors to be considered include: the location of areas of high energy demand, the nature of that demand (constant versus variable), the distance of that demand from the source of supply, and other economic considerations. In any event, the electric power

agreement ultimately reached will be made under terms by which both PEC and the receiving party benefit.

4.3 Natural Gas Pipeline

The PEC will only use natural gas to produce electric power. The PEC will be fueled by clean-burning natural gas, and will require the development and construction of new gas transportation infrastructure to the area surrounding York County, South Carolina. Currently, the existing area gas transportation systems cannot support the transportation of the quantities of gas (estimated at 160,000 Dth per day) required by the PEC during peak gas usage.

The new infrastructure is expected to consist of a wide-diameter pipeline (in the neighborhood of 24 inches) that will span approximately 37 miles from an interconnection with Transcontinental Pipe Line (Transco) to the Fort Mill area near Rock Hill, South Carolina. The pipeline would be constructed by one of three suppliers competing for the option to build the pipeline lateral required to supply gas to the PEC, Palmetto Energy will continue to pursue these negotiations, and may explore other alternatives in order to ensure that the Project and, by implication of pass-through pricing, Duke and other power suppliers in the area benefit by having access to natural gas-fired electrical generation at the most economic rate possible while taking into account reliability concerns of both power generation and natural gas supply.

combustion turbines and the duct burners within the three HRSG's. There will also be a very small quantity of emissions from a small auxiliary boiler, some small gas heaters (used to preheat natural gas), and emergency generator and fire pump engines.

NOx is formed in the turbine combustors primarily as a result of the high temperatures experienced during the combustion process. A small amount of NOx is also formed through the oxidation of fuel-bound nitrogen. In order to limit the formation of NOx, PEC will incorporate Best Available Control Technology (BACT) into the design of the plant, as required by the US Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (DHEC). BACT for plants of this type include the use of state of the art dry low-NO_X combustors in the combustion turbines (to reduce the formation of NO_X in the combustion process), low-NO_X duct burners in the HRSG, and Selective Catalytic Reduction ("SCR") for additional removal of NO_X prior to the emissions being released from the exhaust stack. SCR is a state-of-the-art flue-gas treatment technique that uses an anhydrous ammonia injection system and a catalytic reactorDLN combustor designs are based on the principle of lowering the reaction temperatures of the combustion process and limiting the amount of excess air available during the combustion process as much as possible to reduce the occurrence of NO_X formation. The use of these control technologies is considered to be BACT for this type of turbine and will control NO_X formation. NO_X emissions from the small natural gas fired auxiliary boiler will be limited by fitting the boiler with a low-NO_X burner, which is considered to be BACT for this type of emission source.

Carbon monoxide will be emitted as a by-product of the incomplete combustion of natural gas. PEC has concluded that BACT for CO emissions from the combustion turbines is the employment of lean combustion control technology in conjunction with the use of the Dry Low NOx combustors described above. The basic premise of this combustion control technology involves premixing the fuel and air prior to entering the combustion zone so as to provide a uniform fuel/air mixture that will prevent local hotspots in the combustors. By optimizing the fuel/air mixture and residence time through good combustion practices and variable geometric design techniques, CO emissions will be controlled. BACT for CO emissions from the small auxiliary boiler will be the use of a current technology burner and proper operation of the boiler to limit emissions during all operating conditions.

Similar to CO emissions, VOCs will be emitted as a by-product of incomplete combustion in the combustion turbines. The same lean combustion control technology and use of Dry Low NO_X combustors described above will constitute BACT and will be used to limit the emission of VOCs.

Particulate matter (PM-10) emissions primarily result from the carryover of noncombustible trace constituents in the fuel and inlet air used for combustion. Given the very low amount of impurities in the pipeline quality natural gas to be used in the Project, BACT for particulate emissions will be the use of those fuels and the employment of good combustion practices.

Sulfur dioxide (SO_2) emissions are a direct result of the fuel bound sulfur. Natural gas is one of the cleanest burning fuels available and typically contains no more than a trace amount of sulfur. This small amount of sulfur is introduced into the natural gas as a mercaptan for its odor producing quality. The emissions rate and total annual emissions for sulfur dioxide are based on a conservative estimate of 2 grains of sulfur per 100 standard cubic feet of natural gas. Therefore, the sulfur dioxide emissions from combusting natural gas will be negligible and the use of this fuel will, in and of itself, constitute BACT. The use of natural gas as a fuel will also control emissions of sulfuric acid mist.

Particulate matter from the cooling tower emissions will be minimized through the use of highly efficient droplet drift eliminators to control the emissions of particulate matter from the cooling towers. The high efficiency eliminators will be designed to control drift to less than or equal to 0.005 percent of the cooling tower flow.

The emissions from PEC are expected to be "significant" as defined by US EPA and South Carolina regulations governing air quality. As a result the facility will be classified as a "Major Source" of air emissions and permits to construct and operate the Facility as an air emissions source will be required. PEC is currently in the process of preparing the requisite applications and associated supporting documentation for submittal to DHEC. A Permit to Construct Air Emissions Equipment, under the Prevention of Significant Deterioration (PSD) Program, will be obtained from DHEC prior to the commencement of construction.

A preliminary summary of the estimated annual air emissions for the major emission sources described above is provided in Table 5-1. The emissions estimates are based on a

conservative operating scenario, and reflect continuous operation at 100 percent load. The principal requirements of the PSD permit application are that the applicant demonstrate to DHEC and EPA that the Project will incorporate the use of Best Available Control Technology into its design, and that the Facility will be in compliance with all relevant ambient air quality standards and regulations under all operating scenarios. Based on preliminary air modeling analyses conducted to date, it is expected that the Facility's air emissions will be below significant impact levels (SILs) as established by SC DHEC and EPA, which demonstrates that the maximum impacts of the proposed facility during operation will not be considered to be significant. As a facility with demonstrated insignificant impacts, its operation will not cause or threaten the violation of any ambient air quality standards at any location.

TABLE 1

Summary of Estimated Potential Facility-wide Criteria Air Pollutant Emissions

Pollutant	Emission Rate	Estimated Tons/Year
NOx	<3.5 ppm (BACT)	475
CO	<10 – 15 ppm (BACT)	1324
SO_2	<2 gr/100 SCF (BACT)	190
VOC	<5 ppm (BACT)	216
PM-10	<0.014 lb/MMByu (BACT)	332

Notes:

1. Emissions based on continuous operation at 100% load
2. Emissions based on use of Best Available Control Technology
3. Based on preliminary design information

5.2 Water Use

The primary use of water at the PEC will be in the mechanical draft closed cycle cooling system. About 95 percent of the water used will be directed to PEC's cooling tower. The water is used to make up for water lost to evaporation that results from the heat rejected by the steam turbine/condenser, and cooling tower blowdown. Blowdown is performed to control the amount of dissolved solids and prevent scaling in the cooling tower. The remaining water consumption at PEC will be split between demineralized water for boiler makeup and service water system, which provides wash water for various areas in the plant.

Raw water will be taken from the Catawba River through a new intake structure. The intake will be a submerged wedge-wire screen, and will be designed to comply with the proposed EPA cooling water intake structure Best Technology Available (BTA) standards. Information on the source water body in the vicinity of the intake structure, a description of technologies selected to reduce impingement and entrainment of aquatic species, and data on the baseline biological condition of the source water body will be provided in PEC's National Pollution Discharge Elimination System (NPDES) permit application. Since PEC is proposing an intake structure in a navigable waterway, a US Army Corps of Engineers Nationwide Permit #7 for outfalls and associated intake structures will be obtained under Section 404 of the Clean Water Act. Figure 5 shows the preliminary design for the intake.

The Catawba River is a highly regulated river system, with flows controlled by a series of hydroelectric projects. Water flows in the river adjacent to PEC are controlled by Duke Power's Lake Wylie Dam, which is located approximately 6 miles upstream of the project site. The Federal Energy Regulatory Commission (FERC) requires the Lake Wylie Dam to release a minimum daily average flow of 411 cubic feet per second (cfs) (FERC License No. 2232, Article 32). The Catawba River near Rock Hill (as monitored at a USGS measurement station approximately 2 miles upstream of the project site) has recorded an average river flow rate of 4,270 cfs for calendar years 1990-1999. PEC's design water use will require a maximum of up to approximately 9 million gallons per day (mgd) (14 cfs) during warm months, and an average of approximately 5.5 mgd (8.5 cfs) during typical operating conditions. Water use will vary with plant operational requirements, as well as the number of cycles run in the cooling tower. Cycles of concentration depend on in-coming (river) water quality as well as water chemistry. PEC will

provide details of this information in the NPDES permit application. The proposed maximum withdrawal is less than 3.5 percent of the FERC mandated minimum daily flow from Lake Wylie, and less than 0.3 percent of the long-term average flow in the river. The proposed maximum withdrawal rate is approximately 2 percent of the 7-day, 10-year low flow (7Q10) of 684 cfs that is used by DEHC to establish NPDES permit limits. The 7Q10 is the minimum flow averaged over 7 consecutive days that is expected to occur, on average, once in any 10-year period. Certification from DHEC that the proposed activities do not violate State water quality standards will be obtained during permitting of the raw water intake through the State's Section 401 Water Quality Certification process. Table 2 presents water use and discharge for the expected operating modes of 4 and 10 cycles of concentration in the cooling tower.

Table.2 – Water Use and Discharge

Condition	Water Use (mgd)	Water Discharge (mgd)
Average Day – 4 cycles	5.5	1.4
Average Day – 10 cycles	4.6	0.5
Maximum Day – 4 cycles	9.0	2.2
Maximum Day – 10 cycles	7.5	0.7

Potable water will be obtained from the Town of Ft. Mill from the existing potable water service in Bradley Industrial Park (maximum use of approximately 25 gpm). Water for fire protection will be provided by on-site storage.

5.3 Wastewater Discharge

The principal wastewater streams produced by the Project will be cooling tower blowdown, boiler blowdown, backwash and reject streams from the demineralized water treatment system (ion exchange), equipment wash downs, , and plant and equipment drains after treatment through an oil-water separator. Figure 4 provides a typical water balance showing plant operations and their discharge flows. About 80 percent of the cooling water will evaporate

during the cooling process and the remaining 20 percent (cooling tower blowdown) will be combined with other plant water streams prior to discharge to the Catawba River. The majority of the discharge will be from cooling tower blowdown. The rate of discharge can be adjusted to control the concentration of dissolved solids in the cooling tower. PEC intends to operate the cooling tower between 4 and 10 cycles of concentration. Discharge of waste water to the Catawba River will be via a submerged diffuser that will be permitted under the NPDES program. The diffuser design and liocation will be determined using CORMIX, an EPA supported mixing model for submerged discharges. CORMIX will be used to determine the dilution that is achieved at the edge of the regulatory mixing zone, and to demonstrate compliance with water quality criteria.

The discharge will be comprised mainly of trace inorganic compounds contained in the river water supply that are concentrated due to evaporation in the cooling tower. Some water treatment chemicals will be used by PEC, primarily consisting of biocides/algaecides used to treat cooling water to prevent fouling in the cooling tower. The use of these treatment chemicals will be in relatively small quantities and will be selected to comply with NPDES permit conditions. The blowdown from the cooling tower will be taken from the return or "cold side" of the tower.

Sanitary wastewater will be discharged to the City of Rock Hill's publicly owned treatment works (POTW) through a connection to the existing sewer line in the Bradley Industrial Park which currently runs along Banks Street on the west side of the Project Site.

5.4 Stormwater Discharge

Stormwater runoff from areas within the PEC will be directed to an onsite stormwater detention basin with subsequent discharge to existing surface drainage channels that lead to the Catawba River. During construction, DHEC and EPA guidelines for managing stormwater will be met. During operation, stormwater will be directed to the detention basin. The site will be designed to minimize exposure of industrial activities to stormwater by using covered storage areas and good housekeeping practices.

5.5 Wetland and Aquatic Resources

A wetlands survey was conducted on the Project Site in November 2001. The site was observed to have no jurisdictional wetlands characteristics, namely hydric soils, positive indicators of wetland hydrology, or a predominance of hydrophytic vegetation. Therefore, no jurisdictional wetlands are believed to be present on the site. Calpine will provide documentation of these findings to the U.S. Army Corps of Engineers (COE) Charleston District Office, and DHEC for review. A copy of this technical memorandum is attached in Appendix B.

During the onsite survey, two creeks which may meet the criteria necessary for regulation as "Waters of the United States" under Section 404 of the Clean Water Act were identified on the proposed Facility site. An intermittent stream was identified on the eastern edge of the site that is approximately 10 to 20 feet in width with water present only within the lowest portions of the drainage. No flow was apparent at the time of survey. An intermittent stream was also observed on the western edge of the site. This stream is approximately 5 to 10 feet in width, highly incised, with no water present at the time of survey. The final determination of the regulatory jurisdiction of these two water courses, and verification of report findings, is under purview of the USACE-Charleston District .

In addition to PEC's site, Rights of Way (ROW) for electric power transmission lines and the water/wastewater pipelines will be required to provide access to these utilities. Preliminary designs for the routes for these lines are shown on Figures 6 and 7. The ROW's for the water supply and the electrical transmission line(s) are contained entirely within the Bradley Industrial Park. The waste water line will need a new ROW established once the location of the river discharge point is known. Final design of the ROW's will depend on utility requirements and minimizing environmental impacts. Onsite wetland surveys and associated wetland delineations (if required) for these routes are planned and will be completed upon final design. Upon completion of the survey and delineation, an appropriate report of findings will be submitted to COE and DHEC for review and verification.

5.6 Threatened and Endangered Species

A review of the South Carolina Heritage Trust (SCHT) program's rare, threatened and endangered species database (updated September 10, 2001) has indicated that there are no

documented, State or Federal listed threatened or endangered species on the proposed PEC site. The SCHT program has documented several occurrences of protected plants near the proposed facility site, including Schweinitz's sunflower (*Helianthus schweinitzii*). These are plants that require open habitat with full to partial sunlight, which does not exist on the proposed Project site which is comprised primarily of dense oak-hickory forestation. There are no known occurrences of protected aquatic species in the vicinity of the project site, as illustrated on the "Rock Hill East species occurrence map" in the SCHT database. An onsite evaluation of the Project site for threatened and endangered species was conducted by experienced biologists in November 2001. The onsite evaluation of the Project site did not reveal any evidence of threatened or endangered species. Additional onsite surveys for threatened and endangered species will be conducted for the electric and water transmission lines upon final determination of the routings. Upon completion of the survey and delineation, an appropriate report of findings will be prepared and submitted to the U.S. Fish and Wildlife Service (USFWS) and DHEC for review and verification. This information is contained in the technical memorandum in Appendix B. Also included in Appendix B are copies of letters to the SC Department of Natural Resources (DNR) Heritage Trust Program and the U.S. Fish and Wildlife Service (USFWS), requesting any additional information on State and Federal protected species in the area.

There are known occurrences of the Bald Eagle (*Haliaeetus leucocephalus*) in areas east of the Facility site. If appropriate, and if recommended by USFWS or DHEC, overhead transmission line towers may be equipped with features designed to prevent raptor electrocutions.

5.7 Cultural, Archaeological, and Visual Resources

A background records review for the proposed project site/area was conducted at the offices of the South Carolina Department of Archives and History (SCDAH) and the South Carolina Institute of Archaeology and Anthropology in Columbia, SC. The records examined at SCDAH included a review of their GIS-based Cultural Resource Information System for sites listed in or eligible for inclusion in the National Register of Historic Places (NRHP), and a review of SCDAH's Finding Aid for previously recorded architectural properties near PEC site. For purposes of the records review, all archaeological and architectural sites within a 1-mile radius around the Project area were recorded. The records review indicated that there are no

archaeological sites previously recorded within the Project site area, although nine sites were identified within 1 mile of the PEC site. One historic resource, a segment of the Nations Ford Road, is thought to traverse a small portion of the site. The Red River Historic District, a property that has been determined eligible for National Register, is also located directly across the Catawba River from the project site. A detailed archeological and historical survey will be conducted at the site and surrounding Area of Potential Effects (APE) by qualified personnel, to determine the actual presence and condition of these resources. A copy of the background records review of known resources is included in Appendix C.

A cultural resource field survey of the Project site was initiated in early December 2001. The purpose of this survey was to determine if there are any cultural, historic, or archaeological resources within the APE that need to be evaluated and/or avoided, mitigated, or preserved as a result of the development of the proposed project. The findings of this survey will be documented and submitted to the South Carolina State Historic Preservation Office (SHPO) for review, verification, and approval as appropriate. Additionally, the Catawba Nation will be provided a copy of this document.

The results of the archaeological survey indicate that the putative location of the Nation Ford Road is visible along the western portions of the project area, although many segments are not well-defined and others already have been impacted/disturbed by previous construction of a sewer line. It is also not possible to determine whether the road segments that are visible are actually part of the historic Nation Ford Road. However, in consultation with the SHPO and the Catawba Regional Planning Council (the organization that originally nominated the road), a tentative agreement was reached that certain sections may need to be traversed by an access road or other facility associated with the project. Steps should be taken, however, to ensure that only those portions of the road not readily visible or those that have already impacted will be crossed by the proposed project.

The results of the historic structures survey indicate that the Red River Historic District was no longer eligible for listing in the NRHP as a result of the loss of integrity. The Hamilton Carhartt Mill and associated warehouse structures, both key properties within the proposed district, have been demolished and the integrity of a large portion of the mill homes has been compromised by historically insensitive alterations. Therefore, the proposed Palmetto Energy

Center will have no effect on the Red River Historic District. No other historic structures were found within the APE.

Visual impacts of the proposed facility will also be evaluated to determine if aspects of the physical facility will be visible from various locations in the community surrounding the project site. The evaluation of these visual impacts will be accomplished either by computer visualization techniques, balloon visibility testing, or a combination of both. A report of the findings will be prepared, including an assessment of mitigation measures that will be considered and/or incorporated into the Project

5.8 Geology and Seismology

5.8.1 Soils and Geology

The Project Site is located within the Piedmont Physiographic Province of the eastern U.S., more specifically within the eastern portion of the Charlotte Belt. The Charlotte Belt includes complex medium- to high-grade metamorphic and complex intrusive igneous rocks. The bedrock is overlain by weathered residuum soils which have resulted from the weathering of the parent rock. According to the Natural Resource Conservation Service's (NRCS) Soil Survey of York County, the majority of the upper soil at the site is classified Lloyd Clay Loam. Pockets of Wickham and mixed Sandy Loam are also present.

The geology and soils at the project site are not expected to present any unique construction problems. Facilities of this type do not normally require complex foundation design, and the foundations for the proposed Facility are expected to be typical. Prudent construction, erosion control measures, and best management practices will be used to comply with the requirements of the South Carolina Sediment, Erosion, and Storm Water Management Program and to protect the waters of the adjacent Catawba River.

5.8.2 Seismology

The South Carolina Geologic Survey has mapped known faults and related geologic structures throughout the state of South Carolina. This information indicates that there is faulting located throughout the Piedmont including southern York County. However, there is no geologic evidence that any of the surface faults within the Piedmont, including York County, are even remotely

related to earthquakes that have occurred within historic time.. Palmetto Energy will further evaluate the potential for seismic risk and incorporate the appropriate seismic parameters into the final design of the facility.

5.9 Compliance With Local Zoning Regulations

The PEC Site is zoned ID (Industrial Development District) and can be used for specifically listed purposes including Electric Generating Plants. The PEC site location is consistent with local land use planning. PEC will comply with all applicable local zoning ordinances and regulations and will obtain all required permits and approvals prior to construction and or operation of the facility.

5.10 NOISE

An ambient noise level survey was conducted in December 2001 to establish baseline sound levels within the community, prior to construction and operation of the PEC. Specifically, attended sound level measurements were collected over 20-minute intervals during three daytime and two nighttime/early morning periods, both at the property boundary and at nearby residences. In addition, an unattended, continuous (24-hour) sound level monitor and portable weather station were deployed at the nearest northern residence to the site in order to capture diurnal (day/night) changes in community sound levels.

A three-dimensional acoustical model of PEC will be developed using SoundPlan Version 5.0, to predict Project noise levels at nearby homes and along property boundaries. The model will include all major noise sources, (e.g., gas turbine air intakes and exhausts, gas turbine, steam turbine and HRSGs, step-up transformers, station-service transformers, cooling tower, auxiliary support equipment, etc.) and will account for absorption of sound by air; attenuation due to building and equipment shielding; absorption and reflection of sound by the ground; and attenuation by topographical features, (hills, berms, etc.).

Appropriate state and local agencies will be contacted regarding noise control laws, ordinances or regulations applicable to PEC. PEC sound levels determined from acoustical modeling will be compared to agency limits and as needed, conceptual noise controls will be developed to achieve the appropriate regulatory requirements.

A sound level evaluation will be submitted to the Commission, and include ambient survey results; applicable regulations; operation and construction noise levels and impact assessment sections.

CONCLUSION

WHEREFORE, having fully complied with the provisions of S.C. Code Ann. § 58-33-120 (1976), Palmetto Energy respectfully prays unto this honorable Commission:

1. To set this matter for hearing in accordance with S.C. Code Ann. § 58-33-130(1) (1976); and
2. To issue the proper certificate for the construction and operation of the Palmetto Energy Center; and
3. For such other and further relief as is just and proper.

Respectfully submitted

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By: _____
John E. Niland, P.E.

LEGAL NOTICE

On or about December 21, 2001, Palmetto Energy LLC, an affiliate of Calpine Corporation, will file an application with the South Carolina Public Service Commission for a certificate of environmental compatibility and public convenience and necessity under the South Carolina Utility Facility Siting and Environmental Protection Act, S.C. Code Ann. §§ 58-33-10, et seq. (1976). By its application, Palmetto Energy LLC will seek approval to construct and operate a three-unit combined cycle combustion turbine generating plant for the production of electric power and energy on a site in the Bradley Industrial Park, in York County, South of Columbia, South Carolina. The plant will have a nominal net capacity of approximately 800MW. The facility will be capable of generating up to 970 MW through supplemental natural gas firing of the heat recovery steam generators. The facility, which will be known as the Palmetto Energy Center, is anticipated to be in commercial operation in the second quarter of 2005. Palmetto Energy LLC. will develop the Palmetto Energy Center and will supply low cost and environmentally sound baseload and intermediate power and energy to the regional power market.

Further information with respect to the application is available from Robert T. Bockman, Esquire, McNair Law Firm, P.A., Post Office Box 11390, Columbia, SC 29211, telephone number (803) 799-9800.